Warren County Community College

MAT 141 Pre-Calculus
Course Master Syllabus

Course Information

Catalog Description: This course is the continuation of Math 131 – College Algebra. Its topics include study of trigonometric functions, trigonometric identities, solving trigonometric equations, solving systems of linear equations, matrices, vectors, and conic sections. The use of advanced scientific graphing (TI-89) calculators is required.

Prerequisite(s): Math 131 – College Algebra with a grade of C or HIGHER

Corequisite(s): None

Credits: 3

Hours: 3

Required Text(s):

Supplemental Materials: Graphing Calculator (TI-89)

Instructor Information

Instructor's Name:

Contact Information:

Office Hours:

Program Goals

1. Apply mathematical and statistical concepts to solve a variety of problems, including those in science, business, and engineering.
2. Analyze and interpret quantitative data and communicate findings through verbal, numerical, and graphical models.
3. Clearly communicate mathematical concepts and solutions both verbally and in writing.
4. Use technological tools, such as graphing calculators or computers, to assist in solving mathematical and applied problems.

5. Develop the ability to understand and apply mathematical reasoning in diverse contexts, both within academia and in real-life situations.
6. Demonstrate an understanding of logical arguments and applying mathematical reasoning to draw conclusions.

Class Core Competencies

The following core competencies are embedded in this curriculum:

- Communicate effectively in both speech and writing.
- Apply appropriate mathematical and statistical concepts and operations to interpret data to solve problems.
- Use computer systems or other appropriate forms of technology to achieve educational and personal goals.

Class Learning Assessment

Student Learning Outcomes	Suggested Means of Assessment
Identify and solve equations with an emphasis on trigonometric equations and systems of equations	Homework, quizzes, tests, final exam
Apply concepts in this course to a variety of real-life situations including functions of angles, arc length, angular speed, and polar coordinates	Homework, quizzes, tests, final exam
Identify and analyze the trig functions, the conic sections, and the conic sections, and the unit circle	Homework, quizzes, tests, final exam
Utilize a graphing calculator effectively as a tool to understand concepts and to explore and solve problems	Homework, quizzes, tests, final exam
Demonstrate comprehension of the topics covered in this course	Homework, quizzes, tests, final exam

Grading System

Letter Grade	Percentage Range
A	90 to 100 percent
B Plus (B+)	87 to 89.9 percent
B	80 to 86.9 percent
C Plus (C+)	77 to 79.9 percent
C	70 to 76.9 percent
D	60 to 69.9 percent
F	Below 60 percent

College Information

Disability Services
Disability Services Webpage

Statement and Policy on Cheating, Plagiarism, and Academic Conduct
Academic Conduct Policy (Policy 304) [PDF]

Students are required to perform all the work specified by the instructor and are responsible for the content and integrity of all academic work submitted. A violation of academic integrity will occur if a student: (1) knowingly represents work of others as one's own, (2) uses or obtains unauthorized assistance in any academic work, (3) gives fraudulent assistance to another student, or (4) furnishes false information or other misuse of college documents.

Unauthorized use of Artificial Intelligence (AI) is prohibited unless the instructor explicitly permits it in the syllabus or assignments. If tools such as ChatGPT are permitted by an instructor to be used for an assignment, they should be used with caution and with proper citation. In all such cases, you may only use the specific tools identified as acceptable and you must adhere to the College's standards for attribution, validation, and transparency.

In cases of suspected violation of academic integrity, the incident is to be reported to the Office of Academics. A student found guilty of violating the rule of academic integrity by the Vice President of Academics will be considered to have failed in personal obligation to the College; such failure will be subject to disciplinary action by the College. Unless otherwise notified, the instructor will allow students who are pending disciplinary action to attend class.

Tutoring and Testing at the Instructional Support Center (ISC)

- Instructional Support Center (ISC) Webpage

WCCC Library Services

- WCCC Library Website

Citation Styles and Formatting

Work submitted for any Warren County Community College course must conform to the required formatting and citation style that are specified by the instructor. The Library and Instructional Support Center can assist students with formatting and citations for assignments and papers.

WCCC Attendance Expectations

The College expects students to attend and participate in all classes. This involves sharing discussions and lectures in class, as well as interacting with other students. Grades are based on the quality of work students complete in meeting the requirements for a particular course, as stated in the course syllabus and catalog description. Attendance, among other factors, may be an additional criterion for assigning grades. Students should realize that they are responsible for all class meetings and that work missed because of absences may affect their grades. Attendance in online classes is determined by the completion of assignments/ tests. Students who have not completed any assignments or tests will be considered non-attending and receive an NF grade in online classes.

Class Attendance Expectations

Topical Outline

A. THE TRIGONOMETRIC FUNCTIONS

1. Trigonometric functions of acute angles
2. Applications of right triangles
3. Trigonometric functions of any angle
4. Radians, arc length, and angular speed
5. Circular functions: graphs and properties
6. Graphs of transformed sine and cosine functions

B. TRIGONOMETRIC IDENTITIES, INVERSE FUNCTIONS, AND EQUATIONS

1. Identities: Pythagorean and sum and difference
2. Identities: confusion, double-angle, and half-angle
3. Proving trigonometric identities
4. Inverses of the trigonometric functions
5. Solving trigonometric equations

C. APPLICATIONS OF TRIGONOMETRY

1. The Law of Sines
2. The Law of Cosines
3. Complex numbers; trigonometric form
4. Polar coordinates and graphs
5. Vectors and applications
6. Vector operations

D. SYSTEMS OF EQUATIONS AND MATRICES

1. Systems of equations in two variables
2. Systems of equations in three variables
3. Matrices and systems of equations
4. Matrix operations
5. Inverses of matrices
6. Determinants
7. Partial fractions

E. CONIC SECTIONS

1. The parabola
2. The circle and the ellipse
3. The hyperbola
4. Nonlinear systems of equations

Grading Methods

Assignment	Points/Percentage

Assignment	Points/Percentage

Class Itinerary

Week / Unit	Topic	Readings/Assignments